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OIPE

RAW SEQUENCE LISTING   DATE: 12/17/2001
PATENT APPLICATION: US/10/006,091   TIME: 10:43:45

Input Set : **A:\MSB-7255.1.txt**
Output Set: **N:\CRF3\12172001\J006091.raw**

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```
      3 <110> APPLICANT: Cho, Myung-Sam
      4         Chan, Sham-Yuen
      5         Kelsey, William
      6         Yee, Helena
      8 <120> TITLE OF INVENTION: Expression System for Factor VIII
     10 <130> FILE REFERENCE: MSB-7255.1
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/006,091
C--> 13 <141> CURRENT FILING DATE: 2001-12-06
     15 <160> NUMBER OF SEQ ID NOS: 2
     17 <170> SOFTWARE: PatentIn Ver. 2.0
     19 <210> SEQ ID NO: 1
     20 <211> LENGTH: 1438
     21 <212> TYPE: PRT
     22 <213> ORGANISM: Artificial Sequence
     24 <220> FEATURE:
     25 <223> OTHER INFORMATION: Description of Artificial Sequence: Derived from
     26         human factor VIII sequence
     28 <400> SEQUENCE: 1
     29 Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr
     30  1               5                  10                  15
     32 Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro
     33              20                  25                  30
     35 Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys
     36              35                  40                  45
     38 Thr Leu Phe Val Glu Phe Thr Val His Leu Phe Asn Ile Ala Lys Pro
     39          50                  55                  60
     41 Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
     42  65                  70                  75                  80
     44 Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
     45              85                  90                  95
     47 Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
     48              100                 105                 110
     50 Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
     51              115                 120                 125
     53 Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
     54          130                 135                 140
     56 Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
     57 145                 150                 155                 160
     59 His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
     60              165                 170                 175
     62 Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
     63              180                 185                 190
     65 His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
     66              195                 200                 205
     68 His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
     69          210                 215                 220
     71 Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
```

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```
72 225                   230                 235                  240
74 Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His
75              245                 250                 255
77 Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
78              260                 265                 270
80 Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile
81         275                 280                 285
83 Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
84      290                 295                 300
86 Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met
87 305                 310                 315                 320
89 Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
90              325                 330                 335
92 Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp
93              340                 345                 350
95 Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe
96         355                 360                 365
98 Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His
99      370                 375                 380
101 Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu
102 385                 390                 395                 400
104 Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro
105              405                 410                 415
107 Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr
108              420                 425                 430
110 Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
111         435                 440                 445
113 Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile
114      450                 455                 460
116 Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
117 465                 470                 475                 480
119 Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
120              485                 490                 495
122 His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
123         500                 505                 510
125 Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys
126         515                 520                 525
128 Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala
129      530                 535                 540
131 Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp
132 545                 550                 555                 560
134 Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe
135              565                 570                 575
137 Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
138         580                 585                 590
140 Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
141         595                 600                 605
143 Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser
144      610                 615                 620
```

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```
146 Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
147 625                 630                 635                 640
149 Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Tyr
150                 645                 650                 655
152 Thr Phe Lys His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro
153                 660                 665                 670
155 Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
156             675                 680                 685
159 Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
160         690                 695                 700
162 Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr Gly Asp Tyr Tyr Glu
163 705                 710                 715                 720
165 Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn Asn Ala
166                 725                 730                 735
168 Ile Glu Pro Arg Ser Phe Ser Gln Asn Pro Pro Val Leu Lys Arg His
169                 740                 745                 750
171 Gln Arg Glu Ile Thr Arg Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile
172             755                 760                 765
174 Asp Tyr Asp Asp Thr Ile Ser Val Glu Met Lys Lys Glu Asp Phe Asp
175         770                 775                 780
177 Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg Ser Phe Gln Lys Lys
178 785                 790                 795                 800
180 Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp Tyr Gly
181                 805                 810                 815
183 Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser
184             820                 825                 830
186 Val Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser
187             835                 840                 845
189 Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu
190         850                 855                 860
192 Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu Asp Asn Ile Met Val Thr
193 865                 870                 875                 880
195 Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser Phe Tyr Ser Ser Leu Ile
196             885                 890                 895
198 Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu Pro Arg Lys Asn Phe
199             900                 905                 910
201 Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val Gln His His
202         915                 920                 925
204 Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr Phe
205     930                 935                 940
207 Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro
208 945                 950                 955                 960
210 Leu Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln
211             965                 970                 975
213 Val Thr Val Gln Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr
214             980                 985                 990
216 Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu Arg Asn Cys Arg Ala Pro
217         995                 1000                1005
219 Cys Asn Ile Gln Met Glu Asp Pro Thr Phe Lys Glu Asn Tyr Arg Phe
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```
220    1010              1015              1020
222 His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro Gly Leu Val Met
223 1025            1030              1035              1040
225 Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly Ser Asn
226             1045              1050              1055
228 Glu Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg
229         1060              1065              1070
231 Lys Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val
232       1075              1080              1085
234 Phe Glu Thr Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg Val
235    1090              1095              1100
237 Glu Cys Leu Ile Gly Glu His Leu His Ala Gly Met Ser Thr Leu Phe
238 1105            1110              1115              1120
240 Leu Val Tyr Ser Asn Lys Cys Gln Thr Pro Leu Gly Met Ala Ser Gly
241             1125              1130              1135
243 His Ile Arg Asp Phe Gln Ile Thr Ala Ser Gly Gln Tyr Gly Gln Trp
244         1140              1145              1150
246 Ala Pro Lys Leu Ala Arg Leu His Tyr Ser Gly Ser Ile Asn Ala Trp
247      1155              1160              1165
249 Ser Thr Lys Glu Pro Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro
250    1170              1175              1180
252 Met Ile Ile His Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser
253 1185            1190              1195              1200
255 Ser Leu Tyr Ile Ser Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys
256             1205              1210              1215
258 Lys Trp Gln Thr Tyr Arg Gly Asn Ser Thr Gly Thr Leu Met Val Phe
259         1220              1225              1230
261 Phe Gly Asn Val Asp Ser Ser Gly Ile Lys His Asn Ile Phe Asn Pro
262      1235              1240              1245
264 Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser Ile
265    1250              1255              1260
267 Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys
268 1265            1270              1275              1280
270 Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln Ile
271             1285              1290              1295
273 Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro Ser
274         1300              1305              1310
276 Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln
277      1315              1320              1325
279 Val Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met
280    1330              1335              1340
282 Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser
283 1345            1350              1355              1360
285 Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln
286         1365              1370              1375
288 Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn
289      1380              1385              1390
291 Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu
292      1395              1400              1405
```

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```
294 Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala
295    1410              1415              1420
297 Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr
298 1425              1430              1435
301 <210> SEQ ID NO: 2
302 <211> LENGTH: 402
303 <212> TYPE: DNA
304 <213> ORGANISM: Artificial Sequence
306 <220> FEATURE:
307 <223> OTHER INFORMATION: Description of Artificial Sequence:Derived from
308       Epstein-Barr virus sequence
310 <400> SEQUENCE: 2
311 ggcaatggag cgtgacgaag ggccccaggg ctgaccccgg caaacgtgac ccggggctcc 60
312 ggggtgaccc aggcaagcgt ggccaagggg cccgtgggtg acacaggcaa ccctgacaaa 120
313 ggcccccag gaaagacccc cggggggcat cgggggggtg ttggcgggtc atggggggg 180
314 cgggtcatgc cgcgcattcc tggaaaaagt ggaggggggcg tggccttccc cccgcggccc 240
315 cctagccccc ccgcagagag cggcgcaacg gcgggcgagc ggcggggggt cggggtccgc 300
316 gggctccggg ggctgcgggc ggtggatggc ggctggcgtt ccggggatcg gggggggggtc 360
317 ggggggcgct gcgcgggcgc agccatgcgt gaccgtgatg ag                402
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VERIFICATION SUMMARY   DATE: 12/17/2001
PATENT APPLICATION: **US/10/006,091**   TIME: 10:43:46

   Input Set : **A:\MSB-7255.1.txt**
   Output Set: **N:\CRF3\12172001\J006091.raw**

L:12 M:270 C: Current Application Number differs, Replaced Application Number
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date